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KNOWLEDGE

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U.S. ARMY

ARMY STRONG.

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KNOWLEDGE
OFFICIAL SAFETY MAGAZINE OF THE U.S. ARMY

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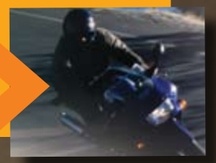

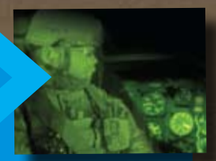

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Mission statement: USACRC supports our Army by collecting, storing, analyzing, and disseminating actionable information to assist Leaders, Soldiers, Families, and Civilians in preserving/protecting our Army's combat resources.

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FROM THE DASAF

"**LEADERS** are not detached, but rather are able to **COMMUNICATE** effectively with their **SOLDIERS** which leads to an in depth **UNDERSTANDING** and better develops their **KNOWLEDGE.**"

ENGAGED LEADERSHIP
SUCCESSES AND UNDERSTANDING

Over the last two or three years, we have made encouraging progress in achieving a safer Army by changing Soldiers' understanding of safety and the desires for Leaders' direct engagement. At the Combat Readiness/Safety Center, we see through the statistical analysis of losses, that where Leaders are present and engaged - There is Goodness.

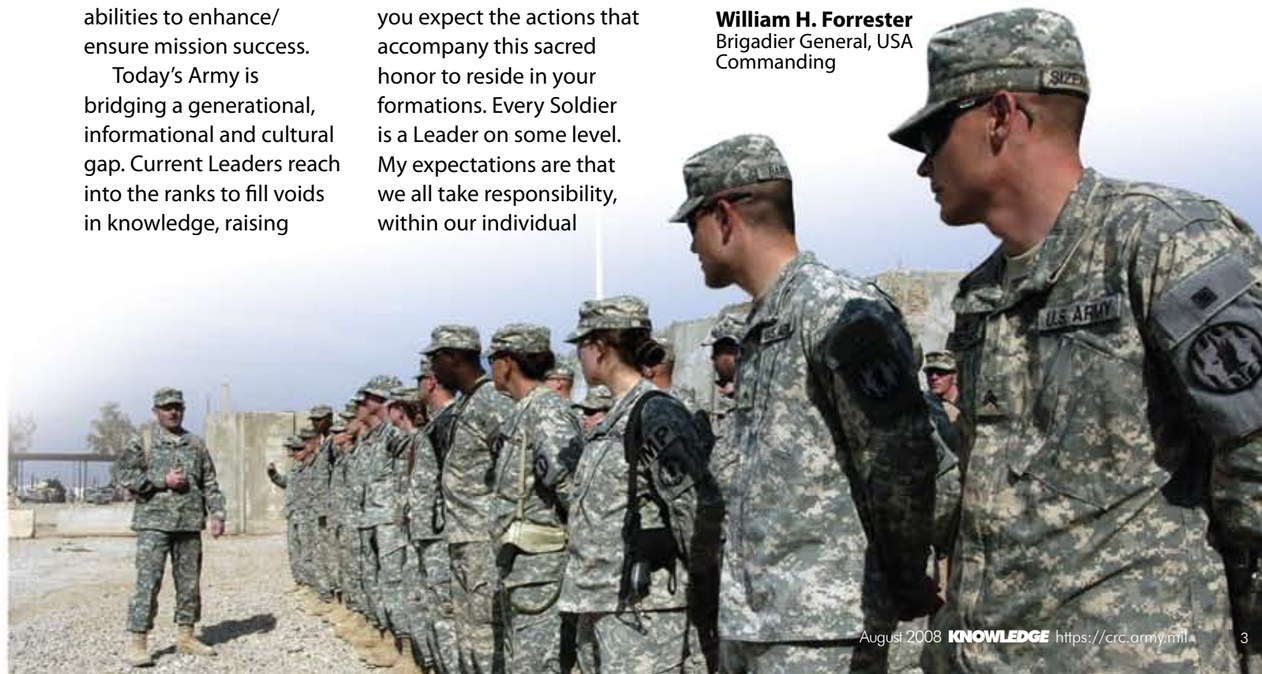
Where we appear to be lacking is in the common understanding of who are Leaders (are they only those who wear the accoutrements of rank?) and what actions we exact from Leaders to ensure our Army operates safer and is best prepared to meet demanding requirements.

Gen. Campbell (CG, FORSCOM) professes that engaged Leaders are engaged, responsible, accountable, and in a solid working relationship with Soldiers. He further states engaged Leaders are not detached, but rather are able to communicate effectively with their Soldiers which leads to an in-depth understanding and better develops their knowledge. This allows Leaders to recognize Soldiers' behaviors and influence their attitudes; clarify standards and ingrain habits of adherence to standards; infuse confidence in Soldiers, comrades and formations; and most importantly, instill Soldiers with the confidence in their Leaders' abilities to enhance/ ensure mission success.

Today's Army is bridging a generational, informational and cultural gap. Current Leaders reach into the ranks to fill voids in knowledge, raising awareness specifically where Soldiers are not likely to have the skill sets to understand. Look carefully at the attributes of Leadership as discussed in this article and where you expect the actions that accompany this sacred honor to reside in your formations. Every Soldier is a Leader on some level. My expectations are that we all take responsibility, within our individual spheres of influence, to make this the safest Army our Nation has ever had.

Army Safe is Army Strong!!

William H. Forrester
Brigadier General, USA
Commanding



TAKING CARE OF OUR OWN

> "**LEADERS** - every **SOLDIER** in my mind - need to take the **HARD RIGHT** over the **EASY WRONG**."

There is a lot going on in our Army. In over six years of sustained combat operations on two fronts, brave Soldiers continue to answer the call of our great nation. There's one thing going on in our Army, however, that does not make sense – losing Soldiers to accidents. I will be the first to admit I don't have all the answers. Two trends in particular we need your help with. First summer, more specifically the last quarter, which is, historically, the deadliest time of year for Soldiers. Second should be no surprise; privately owned vehicle (POV) and motorcycle accidents are on the rise and have claimed over 90 Soldiers' lives so far this fiscal year! We need to reverse these trends and get a handle on these senseless losses.

Recently, the U.S. Army Combat Readiness/Safety Center opened a forum on the Army Battle Command Knowledge System (BCKS) called Army Safety Net which allows Leaders and safety professionals to share information affecting our force. Brig. Gen. Forrester and I pose questions over the Army Safety, NCO and Warrant Officer nets to draw from the experience of our force and we thank all who participate. Awesome points are being made and I agree that we (the Army) need to take action. We need to carry these discussions over to our formations and educate the force, especially about motorcycles.

Gas prices are to the point, I dare say, of making most everyone a potential motorcycle buyer or knowing someone who is. Banning motorcycles, as I have heard some prescribe to, is not the answer. Education is key; motorcycle mentorship programs and riding with groups that abide by the law are great ways to make motorcycle riding a life skill. More importantly, mentorship and group rides show motorcyclists taking responsibility for their sport. Leaders - every Soldier in my mind - need to take the hard right over the easy wrong. Make on-the-spot corrections; everyone in our Army is a Safety Officer/NCO and can tactfully exercise general military authority on and off duty. Some advocate Line of Duty (LOD) investigations and AR 600-8-4 outlines the rules governing line of duty and misconduct determinations. A LOD can be the hammer, but there are other effective tools, ones with less drastic consequences, we can implement.

When it comes to motorcycle accidents, where do we put the onus? On riders? Or with those who turn their heads and let accidents happen? How many of you have seen Letters of Reprimand or Article 15s used for violations; wouldn't these be relevant for Soldiers not riding with personal protective equipment (PPE) or driving recklessly? Although I'm referring to motorcycles, similar issues exist with POVs and should not be overlooked when taking action to move left of the boom.

We continually receive great suggestions and here are a few received via the Army Safety Net:

Installations could hold a one-day motorcycle safety stand down for riders. Ask them how they would solve the problem of motorcycle mishaps and publish the recommendations in the installation newspapers for awareness.

Fort Drum conducted a motorcycle rally in conjunction with a division run. Motorcyclists were not only exempt from the run; they also led the division during the run. Afterward, riders conducted a ride and returned to a barbeque, where Leaders conducted professional development about motorcycles.

I visited Fort Campbell and learned the installation imposes a $30 fine to Soldiers who aren't wearing their PPE on post.

We need to take care of our own. If we make it too tough for Soldiers to ride on the installation, they will find other places where we can't police them. What are we doing to bring it back where we can get our arms around it? Leaders are engaging at all levels. TRADOC Headquarters and other commands have conducted motorcycle mentorship rides, including the SMA and V Corps CSM. What are we not doing or what can we do better?

This summer, longer days directly impact the level of fatigue we experience when trying to cram well-deserved time off into short periods of time. Don't push yourself beyond the limit, manage your time off and have fun this summer. Your nation, Family and Army need you.

Tod L. Glidewell
Command Sergeant Major
U.S. Army Combat Readiness/Safety Center

BEST PRACTICES RECOGNIZING THE RISKS

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Understanding how composite risk management (CRM) works and having the ability to brief it is the responsibility of Soldiers of all ranks. For the Soldiers of the 1st Squadron, 16th Cavalry Regiment, under the command of Lt. Col. Christopher Delarosa, CRM is a part of everyday life. Whether it is out in the field training the future armor Leaders or on the streets in and around the Fort Knox community, the troopers of 1st Squadron know how to implement CRM into their everyday lives.

Both on and off the battlefield, safety is a top priority. Integrating CRM into combat should be second nature, and teaching it to junior Soldiers must start in garrison – before they go to the field. At the company or troop level, it's as simple as breaking down everyday actions like driving to work. Are my tires inflated properly? Have I had enough rest? It's raining, do my windshield wipers work? For weekends, it's taken one step further. What am I planning on doing this weekend? How am I getting to where I'm going? Is there a designated driver if our group goes to a club? What is the decision point for staying in a hotel?

Safety measures taken by the chain of command and the individual Soldier must be met with the same intensity and awareness. CRM must be completed at the lowest level to ensure Soldiers are aware of the real-world hazards they face in day-to-day activities. Some thought and analysis must be done by the Soldier. Otherwise, CRM will not work.

To help ensure their Soldiers also incorporate the principles of CRM into their off-duty activities, Leaders with the 1st Squadron, 16th Cavalry Regiment, have implemented an effective new technique. When it comes time for a holiday or weekend safety brief, troopers are asked what activities they'll be participating in. Soldiers who are planning mid- or high-risk activities are then asked to come before the formation and backbrief their risk mitigation from their CRM worksheet, including the potential hazards they'll face, what controls they'll take and, finally, how they'll implement those controls.

> "**CRM** must be **COMPLETED** at the **LOWEST LEVEL** to ensure **SOLDIERS** are aware of the **REAL-WORLD HAZARDS** they face in **DAY-TO-DAY ACTIVITIES**."

What makes this briefing method so unique is the troopers are coming up with their own risk assessments, not canned briefings they would hear from the troop chain of command before being released for the weekend. This, in turn, helps Soldiers make better decisions based off their own assessments before being released for off-duty activities. These pre-weekend backbriefs have proved very popular with the Soldiers and captured their interest and attention much better than just listening to the troop commander talk at the formation. It helps instill the habit of using CRM throughout the day – on and off duty.

The emphasis placed on the training and use of CRM was one of the major reasons the 16th Cavalry Regiment has experienced a reduction in its accident rate. In fiscal 2007, accidents decreased by nearly 70 percent compared to fiscal 2006. This improvement occurred despite a dramatic increase in high-risk training events due to the switch from the Armor Officer Basic Course to the Basic Officer Leader Course III Program of Instruction; an almost doubling of the operations tempo within the regiment; and an increased number of courses taught and larger course loads and classes. In fiscal 2006, the regiment suffered 19 Class A through D accidents – 13 on duty (10 of which were training accidents) and six off duty. In fiscal 2007, the regiment reduced its accidents by two-thirds to just seven – five of which were on duty (three were training accidents) and two that occurred off duty.

Safety must be a priority for every Soldier. By identifying risks in a manner that is conducive to learning, the troopers of this squadron learn about CRM at the Soldier level and apply it to every mission they are tasked. These efforts help keep our Army Safe and Army Strong!

autocross — satisfying the need for speed

WARRANT OFFICER 1 RICHARD ALBRECHT
Company B, 1st Battalion, 137th Aviation Regiment
Rickenbacker International Airport, Ohio

"It's like being in a movie chase scene, only you're holding onto a steering wheel instead of a box of popcorn!" That's one racing organization's description of what it is like to race your car in an autocross competition. It's a sport that allows drivers to legally get the same adrenaline high they'd otherwise get from street racing.

Finding a safe, legal way to enjoy the performance of your car is important. Soldiers have killed themselves and their passengers while street racing. While racing is as American as mom and apple pie – the trick is finding a way to race safely and legally. Fortunately, autocross provides Soldiers an opportunity to compete in races where winning is all about vehicle handling and driver skill. The skills Soldiers learn – smooth transitions, enhanced braking and skid correction – make them better, safer drivers on the street.

What is Autocross?

Solo autocross is a competition where individuals are timed as they navigate through a temporary course marked by traffic cones. The course is generally laid out in a low-hazard location, such as a parking lot or an inactive airstrip. The course requires drivers to make gates and negotiate slaloms and skid pads at speeds normally encountered during highway driving.

Several organizations sponsor autocross racing. Some organizations are national, some are regional, some are local and others are sponsored by particular car manufacturers. Locating these clubs is as easy as clicking onto the Internet and keying in the words "autocross racing." What these organizations share in common is a passion for racing, rules to keep the races truly competitive and safety guidelines so racers can come back to race another day.

Safety

When it comes to racing, safety always comes first. Races are conducted under the watchful eyes of track officials who are positioned along the track to enforce the rules and guidelines. Competing vehicles are inspected to ensure they meet safety standards. Those standards include fire-suppression systems/fire extinguishers, roll cages and driver restraints. Drivers are required to have personal protective equipment (PPE) such as helmets and fire-retardant clothing. The focus on safety makes autocross racing safer than driving to work.

Who You'll Compete Against

To keep the races truly competitive, cars are grouped into basic classes. Each autocross-sponsoring organization defines those classes in their guidebooks. For example, one club's rules groups vehicles into four basic classes – stock, street prepared, prepared and modified – based upon the vehicles' levels of modification. This ensures a stock sports car isn't competing against a highly modified Viper! The winning edge comes down to driver skill.

What You'll Need

I race with one of the national autocross-sponsoring organizations. To race in their autocross events, you'll need a car, an entry fee of $25 to $50 and a valid driver's license. You'll also need to do some preparation before showing up to race. That includes having PPE, including a Snell-approved helmet (some venues have loaner helmets), working seat belts, eye protection and shoes that enclose your toes. Your vehicle also must be in good working condition with no major leaks, steering and suspension properly aligned, lug nuts properly torqued and tires having adequate tread. Beyond that, it's important to ensure your battery is tightly secured and you don't have any loose objects in your trunk or interior. It's also important to make certain your fluid levels are topped off and reasonably fresh.

Race Day

Try to show up early enough on race day to register and then walk the course. The registrars will verify your driver's license, assign a number for your car and have you sign an insurance waiver. If it's your first autocross, tell them so they can put you in the novice class. There you'll get advice from an instructor, a handbook, a guided course walk and rides with experienced drivers. The next step is the technical inspection, which your vehicle must pass if you're to compete. Read the technical inspection chapter of your club's rule book to see what you'll need to do. If your vehicle is modified, you're responsible for proving it conforms to the rules. Once your car passes the inspection, walk the course and talk to other drivers to find out what works and what doesn't. Make sure you do this early enough to get back in time for the mandatory drivers' meeting. During the meeting, the event chair will provide information about course conditions, the number of runs, any particular safety concerns and work assignments.

Time to Race

With my club, I normally get to make at least four timed runs, weather permitting. It's important when racing to find out where you are in the running order so you'll know when to line up. Follow the track official's directions and, when he waves the green flag, go for it and have fun! If you get "lost" on the course – which is easy to do – take time to orient yourself and continue. You'll receive your time after each run. Your fastest time of the day will determine your finishing position within your class and category.

Work Assignments, Course Clean-up and Awards

With the fun, there is some work involved. This usually consists of observing other drivers on the track to see if they've left the course (failed to finish) or if they've hit a cone, which will cost them a time penalty. You'll normally be paired with another driver, so you'll have an opportunity to talk about the best techniques for the course. Your autocross-sponsoring organization's rule and guidebook will provide details on how to be safe while working the course.

When the racing is over, everyone helps pick up the cones and put away equipment. Following that, depending on the race's sponsor, the event chair will give out the results and present trophies. As an alternative, some local car clubs sponsor a five- to seven-event circuit, maintaining point standings throughout the year and awarding trophies during a banquet at the end of the season.

The Bottom Line

At the end of the day, you'll have tested your driving skills and your car's performance in a safe, competitive environment. You'll also be around for the next autocross, where you'll get another chance to further hone your skills. And, who knows – there could be a future in this for you. Autocross has helped a number of drivers launch their professional racing careers. Maybe you'll get your start there too!

Editor's note: While the U.S. Army does not officially endorse any specific autocross racing club, many Soldiers have chosen to participate in autocross as a safe and legal alternative to street racing. This article was provided by a Soldier who has found autocross to be an excellent way to enjoy the performance of his car in a competitive environment.

BEST PRACTICES
TRADOC Fatality Reporting

DOLORES NIX
U.S. Army Training and Doctrine Command
Fort Monroe, Va.

Reporting the facts and lessons learned behind a fatal accident can save the lives of Soldiers in the future. The U.S. Army Training and Doctrine Command (TRADOC) has developed its Fatality After Accident Review (FAAR) process to ensure those lessons learned reach commanders and Soldiers in a timely manner. The process is offered here as a Best Practice that can provide useful tips for other Army organizations.

Whenever a fatality occurs, a Fatality Review Board (FRB) is convened to initiate a FAAR. This action is separate from the accident reporting requirements of Department of Army Pamphlet 385-40, *Army Accident Investigation and Reporting.* The FAAR's purpose is to ensure accidental losses are investigated in a timely manner, identify causes or contributing factors and determine necessary Leader actions to prevent recurrences. The FAAR is initiated by the senior commander (SC) and completed within 15 to 24 days. The following is the FAAR timeline:

- Any SC experiencing the loss of a Soldier or DA civilian on duty as a result of an accident will telephonically notify the TRADOC commander. The initial Fatal Accident Notification and Interim Report must include as much information as possible. In the absence of the commanding general, the notification and report will be submitted to the deputy commanding general/chief of staff.
- **Within 72 hours:** The SC provides a follow-up report to the TRADOC commander addressing any additional information obtained since the initial notification.
- **Within 14 days:** The SC will convene an FRB and conduct a FAAR. The purpose is to ensure the timely investigation of accident causes and contributing factors and the swift dissemination of lessons learned. The FAAR is not to be delayed awaiting toxicology, autopsy, police or other technical reports. If needed, a more detailed investigation can be conducted later by the safety investigation board or an Army Regulation 15-6 investigating officer to address those aspects. The FRB will be chaired by the SC or chief of staff and, as a minimum, will include the following members:
  - –The unit chain of command, from the first-line supervisor to the brigade commander or equivalent
  - –Command safety director
  - –Medical treatment center facility commander or officer-in-charge for clinical services
  - –Other members, as required, including the alcohol and drug counseling officer, counseling officer, risk reduction officer, staff judge advocate and chief, Mental Health Services
- **Within 10 days of completing the FAAR:** The responsible SC provides the TRADOC commander the FAAR in memorandum format. A copy will be provided to the TRADOC safety director and command surgeon for their review and dissemination of generic lessons learned throughout the command. The memorandum will focus on the accident causes, to include leadership failures (if they can be logically determined from the evidence available at the time), corrective actions taken and any recommendations to prevent recurrence.

Since TRADOC established the FAAR process, there have been several instances where the timely identification and dissemination of lessons learned obtained from the FAAR may well have prevented other accidents.

For more information on TRADOC's FAAR procedures, contact the author at (757) 788-2418 or DSN 680-2418.

The Wind Zone Model

MAJ. JOSH DAY
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Gypsum, Colo.

What is power management? This term means many things to many people. Most agree it has something to do with engine performance and torque. The instructors at the High-Altitude Army Aviation Training Site (HAATS) like to think there's more to power management than just the torque gauge. At HAATS, power management encompasses three things: understanding the environment, understanding the aircraft and understanding yourself.

This article will focus on understanding the environment, which encompasses many things. One of the most important components is the interaction of wind and terrain. At HAATS, we call this Wind and Terrain Analysis (WTA).

This analysis maintains that wind flows over and around obstacles in a consistent and predictable manner. The ability to predict the flow of the wind is the result of understanding and practicing WTA principles, rules and methodologies, which have been developed through research and experiment, both in the laboratory and field. The first requirement to achieve this ability is to believe it can be accomplished. Most pilots dismiss the notion as unnecessary or believe it's far too complicated an issue. This is particularly true in mountainous environments. Airflow responds to the same laws of fluid dynamics as water or any other gas. While we often cannot see the movement, we can always detect it directly or indirectly. It is this ability which allows us to develop the skill to predict and, ultimately, see the wind. The components we need to know and integrate will follow below.

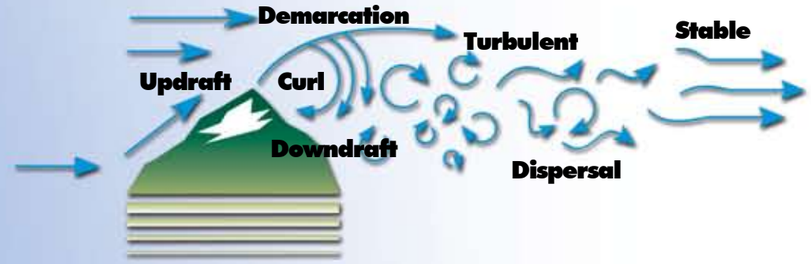
Air flows much like water and has characteristics aviators should note and test while flying in their area of operations. Air follows the path of least resistance. It will take the shortest and/or least obstructed route to fill any lows created by high winds over rough terrain. In canyons and drainages, the wind accelerates in the resultant venturi due to increasing pressure differentials. In winding turns, they accelerate to the outside of the turn, exactly like water, leaving eddies on the inside of turns. When colliding with an equal and opposing force, pilots can expect an opposite and turbulent flow. This opposite reaction can take the shape of a cliff face or another air current.

It's imperative aviators combine the principles in the preceding paragraph with the characteristics of stability and the mechanics of prevailing and valley winds to understand and apply the cornerstone of mountain wind predictions – the Wind Zone Model. The five zones are updraft, downdraft, turbulent, dispersal and stable zones (as depicted in the diagram to the right).

In addition, two other terms require explanation: the demarcation line is the point separating the updraft and downdraft zones, and the "curl," or low pressure, is created by the wind's passage over or around an obstacle.

The demarcation line's angle and height is established by three factors: the velocity of the wind, steepness of the slope and angle at which the wind strikes the slope. It can be considered an extension of the slope as it rises above and beyond the obstacle. It is bent downward horizontally as it interacts with winds aloft. Its actual location becomes important in cross-country operations and when approaches are being considered to pinnacles and ridgelines (see diagram below).

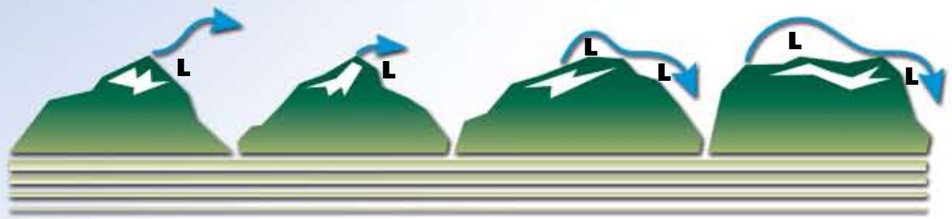
The low-pressure area is created on the leeward side of the obstacle by the very passage of that wind and is the "engine" that drives the ensuing turbulence. The wind will attempt, via the path of least resistance, to fill the low. In the diagram below, the wind must come back from the downdraft zones to attack the low-pressure areas. This initiates a pattern of turbulence, rotating on a horizontal axis, which extends leeward until frictional interaction with other air molecules slows the swirling patterns, allowing the air currents to sort themselves out (dispersal zone) and return to a stable flow (stable zone).



WIND ZONES

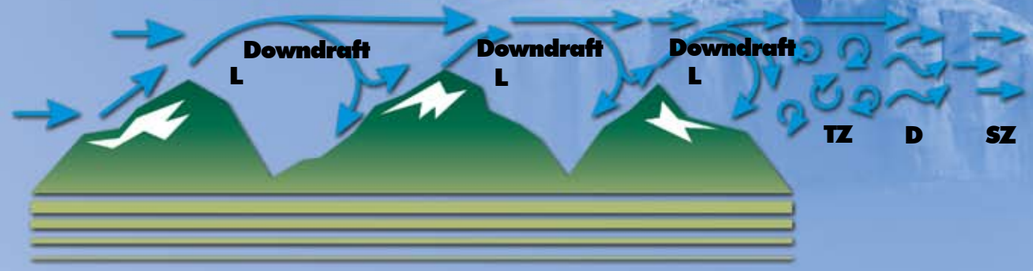
The updraft and downdraft zones are a result of the intervening obstacle. The remaining three zones are a result of the creation of low pressure leeward of the obstacle. If the obstacle has sharp drop-offs on either side, then the movement to fill the low is lateral, or "wrap-around," and the rotational plane of eddies and ensuing turbulence changes to reflect this direction. The rotational axis moves from horizontal to vertical and all points in between. This is particularly noticeable around isolated, sharp peaks, shoulders (abrupt change in terrain relief) or buildings.

The zones expand with an increase of velocity, slope angle or impact angle and contract when the above decrease. Knowing this is important for two reasons. First, pilots with a little experience can judge the effects of the wind by simply studying a topographical map if the upper wind's direction and velocity are known. They can then plan safe routing to avoid the worst of the zones. Secondly, while en route, the pilot can judge the severity of the zones by how far leeward of the obstacle he encounters the dispersal zone (light turbulence). The farther the dispersal zone is from the obstacle, the greater the severity of the turbulence and downdraft zones.



DEMARCATION LINES AND RESULTANT LOW PRESSURE AREAS

When additional obstacles follow immediately after the initial obstacle, then some zones may be eliminated altogether. This is often the case in a series of peaks or ridgelines (as depicted below).



ABBREVIATED WIND ZONES AND STRIKE POINTS

In this situation, most of the turbulent zones are abbreviated or absent, as the turbulent, dispersal and stable zones can be eliminated on the initial and middle ridges. The key is if and where the downdraft zone impacts subsequent obstacles. The ensuing updraft zones can be compressed due to the strength of the downdrafts. Due to compression, the ensuing updrafts become very powerful. This has serious implications for aircraft transitioning narrow valleys. In high winds, there is very little safe maneuver room in such valleys except within the narrow confines of the updraft zones or the "curl" or low pressure. Aviators needing to execute a landing or to maneuver in this confined airspace must use great caution and have an intimate understanding of the environment and their aircraft. Powerful rotational patterns are trapped between the downdrafts and the upwind ridges depicted above.

An additional note must be made about the above diagram. The point where a downdraft descends and impacts subsequent terrain is known as the strike point. Due to the lateral resistance of other air molecules, the airflow at this point can only go up or down. In freshly fallen snow, this area is visible. If there are no visual indications and the goal is to remain above the strike point, then the pilot needs to fly at altitudes equal to the ridge tops. When the updraft zone is compressed as in the previous paragraph, then the pilot needs to fly laterally as close to the terrain as safety permits to remain in the updraft. In these conditions, the route and altitude are dictated by observed or suspected conditions.

This is a brief synopsis of WTA and the Wind Zone Model, which should explain some of the nuances of mountain flying. Having an understanding of the wind and its interaction with terrain can mean the difference between success and failure. For further study on wind and terrain, reference the HAATS Student Book or Field Manual 3-04.203, *Fundamentals of Flight*. You might also consider scheduling a course date at HAATS, which can be found on the Army Training Requirement Resources System, or ATRRS, under School Code 961A or at www.coloradoguard.army.mil/webpages/haats.htm.

IT'S ALL ABOUT POWER

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Editor's note: In this article, we're focusing on engine performance, torque, situational awareness and knowing how much power is available.

Army helicopter pilots are expected to fly in high-density altitude conditions. Simply put, at higher altitudes and in warmer temperatures, an aircraft's engine puts out less power, reducing the aircraft's maneuverability and limiting the load it can carry. Both affect safety and are of critical importance to Army aviators, who are routinely tasked to transport people and cargo or carry weapons and ammunition under conditions that would keep commercial aircraft firmly on the ground.

Tabular Data

Tabular data allows the aircrew to assess power requirements at a hover. It's the means by which aviators can update hover performance in the ever-changing conditions of mountainous and high-density altitude operations. Tabular data exists for most Army aircraft and can be found in either the aircraft checklist or operator's manual. While the weight and torque numbers vary from aircraft to aircraft, the methodology for use is identical. It's intended for cockpit use as a means for a pilot to quickly assess the out-of-ground effect (OGE) weight, the torque to hover OGE and in-ground effect (IGE) for that weight. In the example below this paragraph, if the aircraft weight is 19,200 pounds with 6,000 feet pressure altitude (PA) and 30 C, the torque to hover OGE is 99 percent and the torque to hover IGE is 83 percent. For the sake of coherent presentation, we will use the tabular data for a UH-60L (1.0 aircraft torque factor). It's important to note, however, that the format, function and use are identical with all tabular data.

6,000 feet PA / 30 C
192
99
83

A rule of thumb can be used to adjust the hover number to the current gross weight of the aircraft. The rule of thumb is approximately the maximum gross weight of the aircraft divided by the transmission limit. In the UH-60, it is 1 percent of torque equals 200 pounds of aircraft weight. Each aircraft has its own rule of thumb for use with tabular data. If the aircraft weight is 16,000 pounds, take the difference between 19,200 – 16,000 = 3,200 ÷ 200 = 16 percent. Subtract 16 percent from 83 percent to get your IGE hover of 67 percent, with the maximum torque of 99 percent.

12,000 feet PA / 20 C
156
80
67

One of the easiest methods to determine current gross weight of the aircraft is to add the aircraft's zero fuel weight (365-4) to the fuel onboard. Once the weight is known, adjustments using the rule of thumb will give you the hover required. In the High-Altitude Army Aviation Training Site's (HAATS) Power Management Training System, this number is considered the simulated maximum power available for maneuvering, approach and takeoff. If the zero fuel weight is 14,000 pounds and the fuel at landing is 2,000 pounds, the aircraft weight would be 16,000 pounds. Doing the same math as before, 15,600 – 16,000 = -400 ÷ 2 = 2 percent. Add 2 percent to 67 percent to get your IGE hover of 69 percent, with the maximum torque of 80 percent.

0 feet PA / 40 C
220
109
93

When the top number is the structure limit or the second number is the transmission limit, then the second number is not the maximum torque and you need to go to the maximum torque chart to find that number. In this case, the maximum torque chart gives the 10-minute limit as 117 percent. If the aircraft weight is 16,000 pounds, the difference would be 6,000 pounds, which equals 30 percent off of 93 percent for 63 percent IGE, with a maximum torque of 117 percent.

Remember, these hover numbers are based upon a level surface and zero wind. If this is not the case for the maneuver, then you have to adjust accordingly for lack of surface and impact of headwinds, tailwinds, crosswinds (left and right), updrafts and downdrafts. Tabular data provides an aviator with a good starting point for determining "how much power it will take."

Cruise Charts

Cruise charts are the total drag charts taking into consideration parasite, profile and induced drag. There are three important points on the chart that are determined by the tangent of where the lines intersect the curve. These points, identified as Vx, Vy and Lift Drag (L/D) maximum angle of attack, are defined below. Other points will be a compromise of the above-stated speeds.

- **Velocity x** is the point where the line from the maximum power available intersects the total drag curve. The point is slightly above effective transitional lift, which is the speed that will give you the best angle of climb (maximum altitude in a given distance) when OGE power is not available.
- **Velocity y** is the point of least total drag; it is where the greatest excess power occurs (power available minus power required). This speed will give you the best rate of climb (maximum altitude per unit of time), maximum endurance, minimum rate of descent (autorotation), best turbulence penetration (severe downdraft) and maximum angle of bank without loss of airspeed or altitude (~ 60 degrees). For dual-engine aircraft, it's the point on the cruise chart where you figure the maximum gross weight single-engine (~maximum OGE weight).
- **Autorotation.** The recommended autorotational airspeed is a compromise between Vy and (L/D) maximum angle of attack for the best energy during deceleration and touchdown.

> "**POWER MANAGEMENT** is **MORE** than just **REFERENCING** a torque gauge; **IT'S** about **SITUATIONAL AWARENESS**."

- **(L/D) maximum angle of attack**. This velocity is the most efficient angle of attack for the airfoil. It will give you maximum range (greatest distance traveled per fuel consumed), maximum angle of glide (autorotation) and is essentially the airspeed at which your aircraft was designed to fly. The bank angle it is capable of without loss of airspeed or altitude is about 45 degrees.

Cruise charts and their application provide some vital numbers to reference in flight. Faster speeds have an exponential increase in power required, fuel burn rate and loss of bank angle capability without loss of airspeed or altitude. Aircraft-specific hazards are extreme nose-low profiles (nose tuck tendency), exceeding CGI (cruise guide indicator), V_{ne} (velocity, never to exceed) or V_H (velocity, horizontal). Knowing the number you need to fly at in a given condition could mean making it there with the fuel you have onboard or making that turn without impacting the terrain.

Maneuver

Military aviators seldom have altitude to sacrifice for maneuver capability, so it's important to know airspeeds and amounts of power to execute maneuvers. If you want to execute a 30-degree bank angle and not lose speed or altitude, you need to add approximately 15 percent of the power applied. For example, if you're using 60 percent for cruise, you would need to add 9 percent for a total of 69 percent. For a 45-degree angle of bank, the increase is 40 percent of power applied, and for a 60-degree angle of bank, the increase is 100 percent, or double the power applied.

Along with the power increase for the turns, you will have transient spikes and transient reductions in power when entering and departing these maneuvers. With the application of left or forward cyclic, you will get a transient spike, and with the application of right or aft cyclic, you will get a transient reduction. Remember that right turns end with a left-turn input and quick decelerations finish with forward cyclic. If your aircraft characteristics include transient rotor droop, it's highly advised to lead maneuvers with power.

Climbs and descents will also increase or decrease the amount of power required; generally, it takes 2 percent per 100 feet per minute. This rule of thumb is especially useful when executing an approach or climbing to clear a ridge and removes the guesswork in determining what power setting to fly for a given angle.

Conclusion

Power management is more than just referencing a torque gauge; it's about situational awareness. It's a method of making you aware of all the things that affect the aircraft. The main thrust is allowing the pilot to understand as much as possible about himself, the aircraft and the environment. And once pilots have a quantifiable method with which to predict their aircraft's performance in any situation, they are better able to deal with the other challenges of high-density altitude flight. For more information on power management training, consider attending HAATS. Courses can be found on the Army Training Requirement Resources System, or ATRRS, under School Code 961A or at www.coloradoguard.army.mil/webpages/haats.htm.

Ride Smart — Ride Safe

BOB VAN ELSBERG
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Fort Rucker, Ala.

Living to ride another day isn't always as easy as it sounds. What percent of your riding day can you relax your mind and not continuously watch for inattentive drivers? The truth is, as a rider, you have to be constantly looking for drivers who will cut you off, pull out in front of you or just flat run over you – all while swearing they never saw you. So is there a way to practice this skill without risking it all? There is now.

Recently, a new simulator-type training device was demonstrated at the U.S. Army Combat Readiness/Safety Center. The trainer, while lacking the movement of simulators, is set up with all the normal motorcycle controls. In front of the rider is an LCD screen — which is where the action happens. In the safety of a simulated environment, riders respond to several traffic scenarios while the trainer tracks and records their performance. Once the ride is over, the trainer provides a printout showing how well the rider handled the situations encountered. Working with coaches who assist them on the trainer, riders can talk through their mistakes and improve their skills.

More than anything, the trainer tests a rider's decision-making capabilities and judgment. The key is to get riders thinking ahead and avoiding problems, rather than having to improvise their way out of bad situations. USACRC experts believe this is a great way for a novice or non-rider — much less an experienced rider — to evaluate the decisions they have made.

Trainers provide reality checks for riders who might be a bit more at risk. While the training demonstration has riders obeying the speed limits, coaches could exercise the option of allowing riders to "let it all hang out." What they will experience is how little reaction time they have at higher speeds — and that's a lesson better learned on the trainer than on the streets. Beyond that, the trainer can simulate the open-road conditions, where many sportbike riders like to test their machine's capabilities.

The trainer provides the realism to show people where they might get into trouble on the road. For example, it can help riders realize how much they've got to slow down before entering a curve. If they blow it, riders get the chance to go back and reevaluate their decisions – a better option than learning the hard way.

Taking a test ride on a trainer can be a wise choice for prospective riders. The try-before-you-buy approach lets them see some of the challenges they'll face so they can decide whether they have the skills, coordination and judgment to ride safely. This might prevent Soldiers from buying a motorcycle and then feeling compelled to ride it primarily because of their investment.

The trainer is not only of value to new riders; it can also polish the skills of those who have been away from riding for a while, such as redeploying Soldiers. When these "rusty" riders get on the trainer, two things typically happen. The first is known as the "the déjà vu factor," which is when riders, after they've experienced traffic, begin automatically recalling close calls from their past. That automatically leads to the second thing riders experience — a raising of their "healthy level of paranoia" by two or three notches. The goal is to ensure riders constantly stay aware of the risks in traffic and use good judgment.

Another benefit of the trainer is its ability to put riders inside other vehicles so they can see themselves as other drivers see them. For example, coaches can put riders inside a tractor-trailer to show them how the vehicle's blind spots can hide them from the driver's view. That change of perspective can be sobering. Experts hope the trainers will create safer riders who make better judgments on the road.

For more information on training, contact the Driving Task Force at the U.S. Army Combat Readiness/Safety Center by calling (334) 255-3034, DSN 558-3034 or by e-mail at drivingtaskforce@crc.army.mil.

RIDIN' THE RANGE

EARNIE EAKINS
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Fort Rucker, Ala.

Interested in conducting Motorcycle Safety Foundation training at your installation? Did you know that not just any parking lot will do? A lot may look good, but there are some concerns you need to be aware of before you select a motorcycle range. Here's a short list of things you need to consider:

• Training areas should be level, have a good paved surface free of impediments and have good drainage.

• Areas should have limited access and should be able to be closed off entirely during training.

• Standard range areas are 120 feet by 220 feet with an additional 40 to 80 feet of runoff (total surface area of 160 feet by 260 feet, or best – 200 feet by 300 feet).

• Alternate-sized areas can be approved, but will limit the number of riders per class.

• Information on motorcycle training is available at https://crc.army.mil/DrivingPOV.

A FIGHTING CHANCE

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The level of force Soldiers can use is often dictated by their operating environment. In some military operations, such as peacekeeping missions or non-combatant evacuations, the use of deadly weapons might be restricted. In those instances, hand-to-hand combatives training could be the difference between life and death.

According to Field Manual (FM) 3-25.150, *Combatives*, hand-to-hand combat is an engagement between two or more persons in an empty-handed struggle or with handheld weapons such as knives, sticks or projectile weapons that cannot be fired. Proficiency in hand-to-hand combat is one of the fundamental building blocks for training the modern Soldier.

Commanders know their Soldiers must participate regularly in combatives training. But where do they find subject matter experts? Many will turn to local martial arts "experts" – civilians who run local dojos. Unfortunately, most of these individuals have little or no expertise in Army doctrine, how wars are actually fought or, even more unsettling, risk mitigation.

For the past seven years, the U.S. Army Combatives School at Fort Benning, Ga., has provided subject matter expertise for the U.S. Army Infantry Center, the proponent agency for close-quarters combat. This arm of the modern Army combatives program runs a train-the-trainer course to produce Soldiers who can effectively advise commanders on how to establish and sustain safe, effective Army combatives programs.

The program trains instructors not only how to employ the Army's doctrine of fighting techniques, but also training strategies that allow those fighting techniques to be employed in support of a unit's mission essential task list. As these instructors progress, they learn how composite risk management is applied to training events. Also integral to the courses are developing controls specific to the instructors' home unit stations; a thorough study of FM 5-19, *Composite Risk Management*; local regulations; and exercises on documenting safety through Department of the Army Form 7566.

Our mission is providing commanders with the most knowledgeable, proficient combatives master trainers possible. However, the commanders' skills do not stop developing at the end of the courses. As periodic updates are made to emerging doctrine, the information is shared immediately and reiterated annually during the training provided at the All Army Combatives Symposium. A formal system of safety reporting and accountability is also in the process of being built.

Combatives training gives Soldiers courage and self-confidence and allows them to remain in control while under pressure. Leaders must ensure, however, their Soldiers receive the proper training. Hiring a local martial arts expert is often expensive, commonly ineffective, outside of Army doctrine and can put your troops at risk for serious injury or death.

If you have any questions regarding the Modern Army Combatives Program or the U.S. Army Combatives School, please contact the director, Matthew Larsen, or the chief trainer, Sgt. 1st Class David Barron, at (706) 545-2811 or DSN 835-2811, or visit our Web site at https://www.infantry.army.mil/combatives/.

> "**OUR MISSION** is **PROVIDING** commanders with the most **KNOWLEDGEABLE**, **PROFICIENT** combatives **MASTER TRAINERS** possible."

OVERWATER MISSIONS require DECONTAMINATION PREPAREDNESS

CHRIS TRUMBLE
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Fort Rucker, Ala.

Unit standing operating procedures (SOPs) should be developed for aircrew members and passengers who might become contaminated following an unintended ditching.

Ditching an aircraft could likely result in large quantities of fuel and oils being dumped into the water and the aircrew becoming contaminated while egressing. Fuels and oils are actually hydrocarbons, which are chemicals composed of hydrogen and carbon atoms. Military specification diesel fuel, hydraulic oil and creosote are all complicated hydrocarbon mixtures with lots of polyaromatic hydrocarbons (PAHs). These PAHs are known carcinogens and about the heaviest hydrocarbons known to evaporate and dissolve in water. And PAHs are not the only threat — depending on the mission profile, there could be other contaminates in the water. A recent example of this followed Hurricane Katrina, when hazardous materials contaminated the flood water in New Orleans. If a helicopter went down, the aircrew would have been exposed to these contaminates during emergency egress, along with those released by the aircraft.

Department of Army Pamphlet (DA Pam) 385-90, *Army Aviation Accident Prevention Program*, paragraph 2-12, states SOPs should be developed to address extreme environmental operations such as overwater missions. Additionally, Army Regulation (AR) 385-10, *The Army Safety Program*, requires development of an emergency plan with requirements for decontaminating aircrews. The SOPs should also include appropriate best-case and worst-case scenarios, including equipment, materials and training for these events. Decontamination SOPs should incorporate type of clothing, aviation life support equipment, flight helmet and night vision goggles and whether to decontaminate the piece of equipment or garment or dispose of it. Specific items, such as collection and disposal of displaced contaminants, as well as how it is done and who will perform the decontamination, are all considerations that need to be addressed.

> “**BEFORE** conducting **A MISSION** where overwater operations may be involved, **DECONTAMINATION** procedures **SHOULD BE** a **COMPONENT** of the **PRE-MISSION** briefing.”

A medical post-exposure evaluation should be conducted on all involved crewmembers as soon as practical and documented so this important step is not overlooked. The flight surgeon should be consulted and involved in the development of the SOP, to include requirements for prophylactic vaccinations against probable contamination threats. The range of potential hazards include infectious microorganisms (viruses, bacteria, fungi, algae, parasites), dermatoses (schistosome dermatitis, cymothoidism), intoxications (toxins produced by dinoflagellates), envenomation (venomous invertebrates, echinoderms, mollusks), as well as hazards contributed by man such as petroleum products and chemicals. The flight surgeon will be of great value in formulating a control program and keeping the medical recordkeeping system current.

Research and document what decontamination solutions can be used and how to acquire and where to store them. Development of an inspection, maintenance and disposal plan is also necessary for decontamination solutions and response equipment. If your plan involves multiple decontamination strategies based upon contaminate(s), a method to identify the exposure will be required. Who will identify the exposure and the method(s) used should be documented in the unit plans. The possibility of biological and/or radiological hazards should be considered in conjunction with the chemical and toxicological hazards presented by the aircraft.

Aircrew members who may be exposed to waterborne contamination should receive periodic safety training to familiarize themselves with the potential hazards. Possible subjects to cover during the training session include:

- Etiology of waterborne infectious diseases
- Geographic distribution of infectious agents and dangerous marine life
- Sources of water pollution
- Infectivity of microorganisms from aquatic environments
- Transmissibility of aquatic microorganisms
- Clinical symptoms of relevant diseases
- Symptomatic and specific treatment
- Vaccine prophylaxis
- Exposure incident reporting
- Use of protective clothing
- Medical surveillance programs
- Compliance with Occupational Safety and Health Administration, Bloodborne Pathogens Standard (29 CFR 1910.1030)

Training exercises on how to respond to an overwater accident should be conducted regularly and documented to show the date of the training and the names of the attendees. Training should include information on where decontamination zones will be established. It is critical to know who establishes, staffs and demobilizes these events so as to avoid confusion and provide a rapid and efficient response. Responders should be familiar with and understand what type of personal protective equipment is appropriate and how to wear, decontaminate and dispose of it.

Before conducting a mission where overwater operations may be involved, decontamination procedures should be a component of the pre-mission briefing. By ensuring decontamination is addressed in unit SOPs, you can reduce potential and actual exposures from occupational and environmental hazards encountered during military operations to as low as practicable. This not only meets the requirements of AR 11-35, *Deployment Occupational and Environmental Health Risk Management*, but will also minimize acute, chronic and delayed health effects within the context of mission parameters and Army composite risk management principles.«

RESOURCES FOR DEVELOPING THE OVERWATER MISSIONS SOP

SAFETY		
AR 385-10	The Army Safety Program	23 August 2007
DA Pam 385-10	Army Safety Program	23 May 2008
DA Pam 385-24	Army Radiation Safety Program	24 August 2007
DA Pam 385-30	Mishap Risk Management	10 October 2007
DA Pam 385-61	Toxic Chemical Agent Safety Standards	27 March 2002
DA Pam 385-69	Biological Defense Safety Program	31 December 1993
DA Pam 385-90	Army Aviation Accident Prevention Program	28 August 2007
ARMY PROGRAMS		
AR 11-34	The Army Respiratory Protection Program	15 February 1990
AR 11-35	Deployment Occupational and Environmental Health Risk Management	16 May 2007
MEDICAL SERVICES		
AR 40-13	Medical Support-Nuclear/ Chemical Accidents And Incidents	1 February 1985
AR 40-562	Immunizations and Chemoprophylaxis	29 September 2006
NUCLEAR, CHEMICAL WEAPONS AND MATERIEL		
AR 50-5	Nuclear Surety	1 August 2000
DA Pam 50-5	Nuclear Accident or Incident Response and Assistance (NAIRA) Operations	20 March 2002
AR 50-6	Chemical Surety	26 June 2001
DA Pam 50-6	Chemical Accident or Incident Response and Assistance (CAIRA) Operations	26 March 2003
AVIATION		
AR 95-27	Operational Procedures for Aircraft Carrying Hazardous Materials	11 November 1994
ENVIRONMENTAL QUALITY		
AR 200-1	Environmental Protection and Enhancement	13 December 2007

Watch Where You Point That Thing

CHIEF WARRANT OFFICER 2 MICHAEL RUTLEDGE
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Fort Lewis, Wash.

Weapons are designed to disable designated enemy personnel and, in the hands of properly trained Soldiers, accomplish this task exceptionally well. We must remember, however, a weapon is the instrument of its operator. It will dutifully shoot in the direction the operator points it. Therein lies the problem of negligent discharges, which are always unacceptable and tragic when a Soldier is injured or killed.

> "**IF** a **SOLDIER** should **BYPASS** every other procedural and mechanical **SAFETY MEASURE** other than making sure his **WEAPON** is always **POINTED** in a **SAFE DIRECTION**, it's **UNLIKELY** anyone will get **HURT** if the weapon **FIRES.**"

Soldiers in sustained combat operations must handle their weapons frequently. Before deployment, they must undergo repetitive, intensive training at home to prepare for the increased weapons exposure in theater. Manipulating both personal and vehicle-mounted weapon systems is pretty routine for most Soldiers, regardless their occupational specialty.

Since the beginning of fiscal 2000, 43 Soldiers have died in negligent discharge incidents. The majority of these didn't happen under stressful combat conditions; in fact, several occurred during clearing or cleaning in garrison environments. Perhaps what's most heartbreaking about negligent discharge incidents is, almost without fail, they are all preventable. Weapons safety is taught and emphasized on a daily basis from the beginning of a Soldier's career. How, then, are these negligent discharges occurring? One possibility is weapons handling has become an everyday occurrence for most Soldiers. An M4 rifle or M9 pistol is currently a basic component of the garrison and deployed uniforms.

Another possibility for these incidents is some first-level Leaders have become complacent in the repetitive nature of training their troops on weapons handling procedures. It's incumbent on Leaders at every level to ensure the basics of correct weapons handling are taught and enforced throughout their formations. Noncommissioned officers have an even greater responsibility since they're usually present during critical phases of weapons operations such as loading and clearing.

Several safety procedures and mechanisms exist to prevent negligent discharges. One that's often overlooked, however, is also almost 100 percent effective — basic muzzle awareness! If a Soldier should bypass every other procedural and mechanical safety measure other than making sure his weapon is always pointed in a safe direction, it's unlikely anyone will get hurt if the weapon fires. Of course, simply being careful about muzzle direction doesn't give a Soldier permission to skip the other steps of proper weapons handling. Leaders must also constantly reinforce muzzle awareness to the point it becomes habit for their Soldiers.

Likewise, Soldiers must get in the mind-set that any weapon, whether it's firmly locked in an armory, has its magazine out, is lying with its chamber open on a bunk or is being carried on a combat patrol, is capable of killing them. Soldiers must be trained to be skeptical no matter how benign a weapon looks. A weapon is a killing machine that's waiting for an opportunity to do so.

These principles apply to those working around weapons, as well. Bystanders losing situational awareness or taking proper weapons handling for granted could unexpectedly find themselves on the wrong end of a weapon. By remaining cognizant of their surroundings, other personnel will allow Soldiers to avoid potentially dangerous situations and also provide the opportunity for corrective training.

Current training and deployment requirements dictate Soldiers develop and maintain weapons proficiency. The law of averages indicates that as realistic training and combat deployments continue, so, too, will the relative occurrence of negligent discharges. It's unlikely we'll ever be able to prevent all negligent discharges, but proper training and reinforcement can limit the damage and injury they cause.

FYI

In fiscal 2007, the Army experienced 58 negligent discharge incidents, 17 of which occurred off duty and 41 on duty. Of these accidents, eight resulted in fatal injuries, with six occurring off duty and two on duty. To combat negligent discharges, Leaders must change the way Soldiers think about and handle weapons. Both Leaders and Soldiers have a responsibility to set the example for others and make on-the-spot corrections. Drill home that your Soldiers must THINK weapons safety!

Treat every weapon as if it's loaded.

Handle every weapon with care.

Identify the target before you fire.

Never point the muzzle at anything you don't intend to shoot.

Keep the weapon on SAFE and your finger off the trigger until you intend to fire.

an AVIATOR'S GUIDE to SIMULATOR SICKNESS

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What is Simulator Sickness?

Simulator sickness is a form of motion sickness that may be caused by physical motion, visual motion or a combination of the two. Symptoms of simulator sickness include:

Dizziness	Headache
Disorientation	Sweating
Warmth	Fatigue
Confusion	Vertigo
Eye Strain	Paleness
Nausea	Apathy

However, everyone reacts to simulator sickness differently. It's important to recognize the symptoms early before they become severe and impair training.

Who is at Risk for Simulator Sickness?

Aircrews that are new to the simulator are very susceptible to simulator sickness. Interestingly, aviators with high amounts of actual aircraft hours are also very susceptible. Experienced pilots are more likely to notice differences between the aircraft and simulator, and these differences contribute to simulator sickness. In addition, hangovers, sleep loss, poor health and emotional stress all increase your risk for simulator sickness.

How Can I Reduce Simulator Sickness?

You can reduce simulator sickness by altering your behaviors, the flight scenario or the flight simulator.

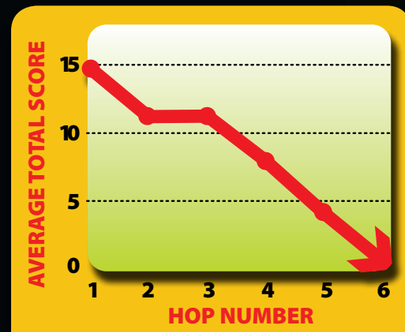
Behaviors. The best defense against simulator sickness is adaptation. Give yourself time to gradually get used to the new motion environment. Get plenty of rest and reschedule your training session if you are not in your normal state of fitness. Also, minimize head movements if you start to experience any symptoms. Ginger, mints, saltines and cool moving air all help ease the perception of symptoms.

Scenario. Early flight profiles should be brief with gentle maneuvers. Stay current; allow two to five days between training sessions for the most efficient adaptation. Also, avoid freezing the simulation in unusual maneuvers. If this can't be avoided, close your eyes before the freeze.

Simulator. Never use an uncalibrated simulator! Make sure computer-generated image projectors and screens are working properly and report any changes in simulator performance. Make note of any evidence of misalignment, double image, blurring or changing colors. Things like persistent flicker, color imbalances, asynchrony between controls and displays and/or changes in the feel of the controls all contribute to simulator sickness. Simulators with a wide field of view also increase the risk of simulator sickness.

What Do I Do if I Experience Simulator Sickness?

If possible, reduce your field of view or turn off the visuals and fly instruments. Shorten the length or terminate the session, if necessary. Give yourself enough time to recover before driving; there have been reports of pilots experiencing aftereffects such as visual flashbacks and dizziness up to six hours after simulator sessions! If eyestrain is a common problem, schedule simulator flights for morning periods. However, if headaches occur more frequently, schedule simulator flights in the afternoon.



Simulator sickness scores decrease as number of training sessions increase.
(From Kennedy , Lane, Berbaum and Lilienthal, 1993)

General Rules

- Know the symptoms of simulator sickness and look for signs in yourself and others.
- Allow yourself time to adapt to the new motion environment; frequent brief training sessions with mild maneuvers are better.
- Do not use the simulator for more than two consecutive hours and take a break, if possible.
- If you experience simulator sickness, give yourself time to recover before driving and restrict yourself from actual flight for at least 12 hours after symptoms disappear.

DID YOU KNOW?

In accordance with Army Regulation 40-8, *Temporary Flight Restrictions Due to Exogenous Factors Affecting Aircrew Efficiency*, aircrews exhibiting symptoms of simulator sickness will be restricted from actual flight for 12 hours after full resolution of symptoms.

HOW ARE WE DOING?

FISCAL 2008 MIDYEAR GROUND ACCIDENT REVIEW

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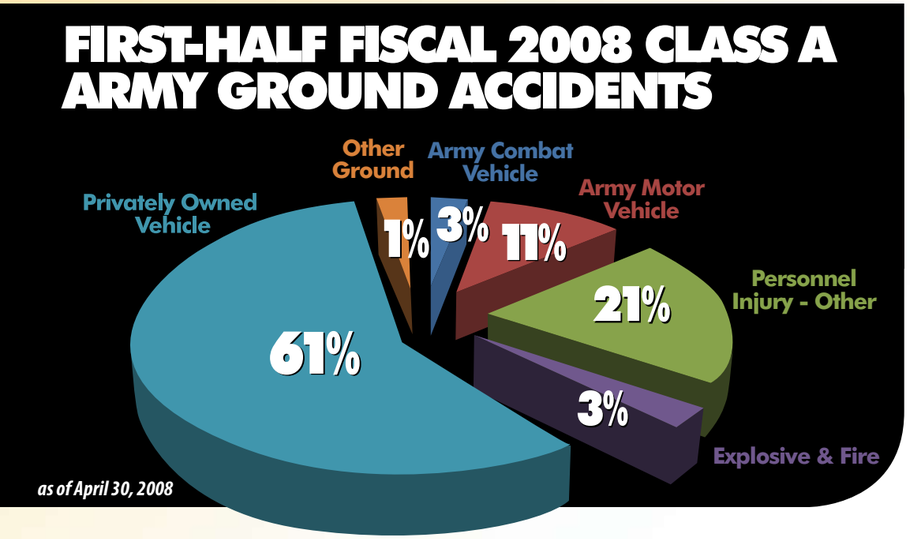
Overall, Army Class A ground accidents and Army military fatalities for the first half of fiscal 2008 mirrored the numbers from the same time period the previous year. In some areas, we made positive strides, while other areas are in need of improvement.

During the first half of fiscal 2008, the Army experienced 101 Class A ground accidents, resulting in 91 Army military fatalities. These numbers were up one accident and down one fatality when compared to the same time period in fiscal 2007. This article will review only Class A accidents and Army military fatalities for the first half of fiscal 2008. However, information on the accidents experienced during this time is still filtering into the U.S. Army Combat Readiness/ Safety Center (USACRC), so the statistics, figures and findings may change in the coming months. As can be seen in the chart on page 28, 61 percent of the Class A ground accidents occurred in privately owned vehicles (POV);

21 percent were personnel injury–other (PI-O) accidents; 11 percent were Army Motor Vehicle (AMV) accidents; 3 percent were Army Combat Vehicle (ACV) accidents; and 3 percent were fire and explosive accidents. Of these accidents, 20 percent occurred during Operation Iraqi Freedom (OIF) or Operation Enduring Freedom (OEF).

The picture is similar when looking at the fatalities. POV accidents accounted for 67 percent; PI-O accidents accounted for 20 percent; AMV accidents accounted for 10 percent; and fire and explosive accidents accounted for 3 percent. POV accidents will be discussed further in the POV/POM midyear review on page 30.



Personnel Injury-Other*

There were 21 Class A PI-O accidents during the first half of fiscal 2008, resulting in 18 fatalities. These numbers were slightly up from the 18 Class A accidents and 17 Army military fatalities for the first half of fiscal 2007.

On Duty

This year's 10 on-duty accidents resulted in eight fatalities, compared to three accidents and three fatalities for the first half of fiscal 2007. Three of this year's fatalities involved Soldiers being pinned by vehicles, two of which occurred during maintenance activities. One Soldier was pinned between vehicles during a post-exercise clean-up, and one Soldier was pinned under a vehicle when it shifted on its jacks. The other fatality occurred when a Soldier was pinned between the bucket of a front-end loader and the roof of a building he was attempting to access with the bucket.

Two fatalities involved weapons handling – one the result of a negligent discharge and the other due to friendly fire. The other three on-duty PI-O fatalities involved parachuting, physical training and an electrocution. Five of this fiscal year's fatalities occurred during support of OIF or OEF.

Off Duty

The remaining 11 Class A PI-O accidents occurred while the Soldiers were off duty and resulted in 11 Soldier deaths and a permanent total disability injury. This is four fewer accidents than for the same time period last year.

This year's off-duty PI-O accidents fall into four categories: struck by a vehicle, falls, water-related and other accidents. Four Soldiers were struck and killed by vehicles – two by trains and two by POVs. Two Soldiers fell to their deaths, one from a beach condo balcony and the other from a cliff while hiking. Water-related accidents killed one Soldier while swimming, and another Soldier suffered a permanent total disability in an alcohol-related accident after diving into shallow water and striking an obstacle.

In the other accidents, a Soldier was killed in an alcohol-related incident when he shot himself in the neck with a handgun; a Soldier died when the backhoe he was operating overturned on a slope; and a Soldier died while skateboarding with his son when they apparently fell and the Soldier suffered a head injury.

Army Motor Vehicle

AMVs accounted for 11 Class A accidents during the first half fiscal 2008, resulting in nine Army fatalities. These numbers were down from the 13 Class A accidents and 15 fatalities experienced during the first half of fiscal 2007. Eight of this year's accidents, which resulted in seven fatalities, occurred during OIF/OEF.

Seven of this year's accidents involved the HMMWV, accounting for six fatalities. This was three fewer HMMWV fatalities than for the first half of fiscal 2007. Six of the HMMWV accidents occurred during OIF/OEF, resulting in five fatalities.

The M1114 accounted for three of the fiscal 2008 accidents and three fatalities; the M1151 accounted for two accidents and one fatality; and the M997 accounted for one accident and one fatality. Six of this year's HMMWV accidents involved rollovers: three involved the M1114 and two involved the M1151.

Army Combat Vehicle

ACVs accounted for three Class A accidents, but resulted in zero fatalities during the first half of fiscal 2008. These numbers were down significantly from the 12 Class A accidents and seven fatalities for the same time period in fiscal 2007. The vehicles involved in this year's accidents were a field artillery ammunition support vehicle (FAASV), a Stryker-series vehicle and an M1117 Armored Security Vehicle (ASV). Two of these accidents (Stryker and FAASV) involved rollovers while towing disabled vehicles. One of this year's accidents occurred during OIF.

Explosive and Fire

Explosive and fire accidents accounted for three Class A accidents during the first half of fiscal 2008, resulting in three fatalities. There was one fire and two explosive accidents, which was one more than for the same time period in fiscal 2007.

All three of these accidents occurred in support of OIF. One explosion and fatality involved a Soldier picking up unexploded ordnance during police call, while the other explosion and fatality occurred when static electricity from the rotors of a helicopter caused blasting caps from a cache to detonate.

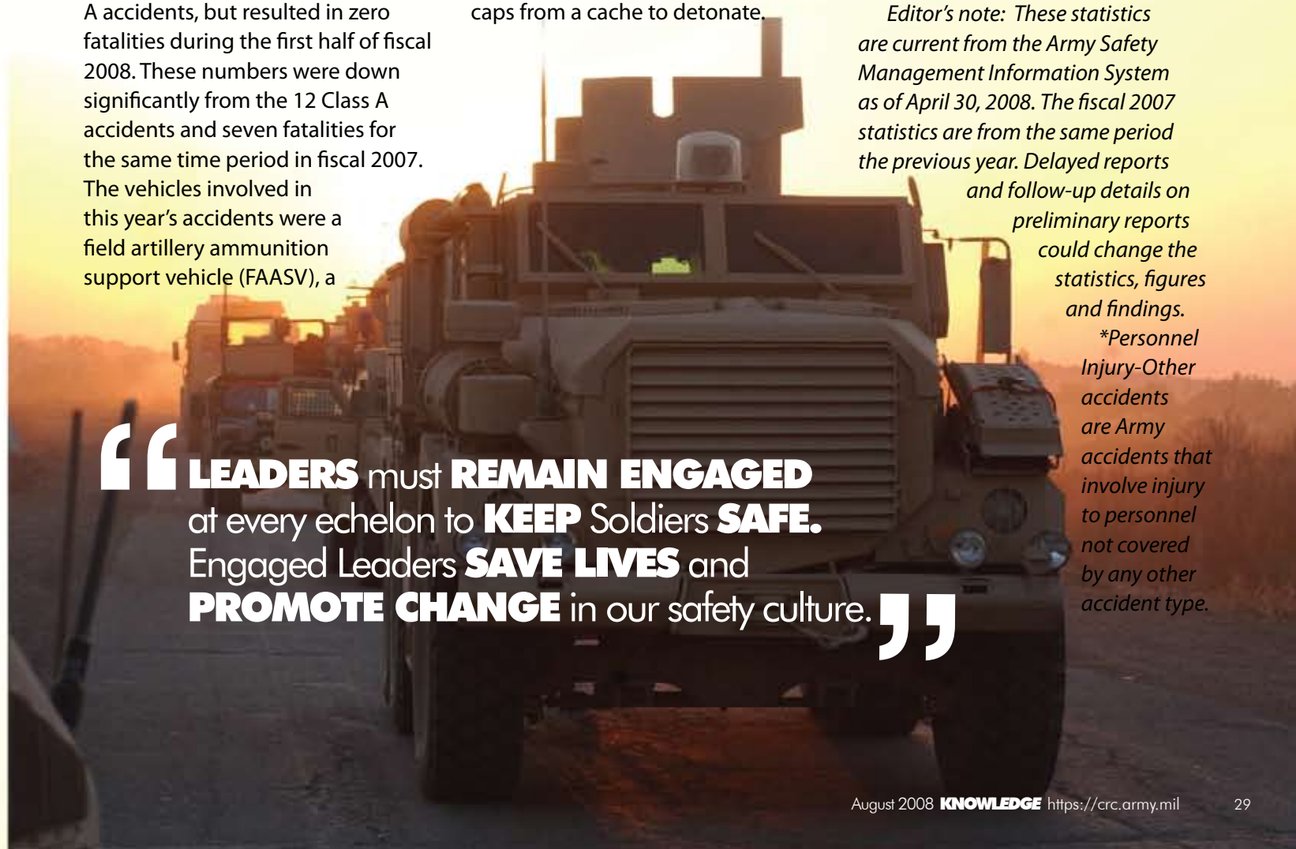
Conclusion

Review of the overall Class A ground accident data for the first half of fiscal 2008 shows little change compared to last year. While we had fewer AMV and ACV accidents and fatalities, fire and explosive and PI-O accidents both increased slightly. Within PI-O accidents, off-duty accidents were down, but on-duty accidents more than tripled.

Leaders must remain engaged at every echelon to keep Soldiers safe. Engaged Leaders save lives and promote change in our safety culture. The USACRC has a number of tools to help Leaders and Soldiers manage risks and prevent needless losses. Take a moment and visit the USACRC's Web site at https://crc.army.mil to view some of these products. Army Safe is Army Strong!

Editor's note: These statistics are current from the Army Safety Management Information System as of April 30, 2008. The fiscal 2007 statistics are from the same period the previous year. Delayed reports and follow-up details on preliminary reports could change the statistics, figures and findings.

**Personnel Injury-Other accidents are Army accidents that involve injury to personnel not covered by any other accident type.*



HALFWAY THERE IN '08

FISCAL 2008 MIDYEAR POV/POM ACCIDENT REVIEW

GLEN DAVIS
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

We're now at the halfway point of fiscal 2008 and it's time to see how we're doing and how we compare with the same time period last fiscal year.

Off-Duty Class A Privately Owned Vehicle (POV) Accidents

This year, the outlook for POVs is not promising, with 62 Class A POV accidents claiming the lives of 61 Soldiers and permanently totally disabling three others. Compared to the same period last year, we have experienced eight more Class A accidents, a 15-percent increase.

OFF-DUTY CLASS A POV ACCIDENTS

	Fiscal 2007	Fiscal 2008	Increase/Decrease
# of Class A Accidents	54	62	+8
Soldiers Killed & Permanently Disabled	19	28	+9

as of April 30, 2008

Vehicles

The good news this fiscal year is we have had six fewer Class A Jeep/sport utility vehicle (SUV) accidents, three fewer pickup truck accidents and one less van accident. However, the bad news is we have had nine more each Class A motorcycle and sedan accidents and added an all-terrain vehicle (ATV) accident. Overall, we have had an increase of eight Class A accidents compared to the same time last fiscal year.

OFF-DUTY CLASS A POV ACCIDENTS

	Fiscal 2007	Fiscal 2008	Increase/Decrease
Motorcycle	12	21	+9
Sedan	19	28	+9
ATV	0	1	+1
Van	2	1	-1
Truck	9	6	-3
Jeep/SUV	12	5	-7
Total	54	62	+8

as of April 30, 2008

Weekends

Weekends have not been kind to Soldiers so far this year, with 36 Class A POV accidents compared to 26 on weekdays. Compared to last year, weekend accidents have climbed nearly 30 percent. Motorcycles lead this uptrend with 14 accidents – double last year's number.

Single-Vehicle Versus Multi-Vehicle Accidents

Another adverse upswing this fiscal year is the increase in single-vehicle accidents. At last year's midpoint, there had been 24 multi-vehicle and 30 single-vehicle Class A accidents. This year, multi-vehicle accidents have fallen by two while single-vehicle accidents jumped from 30 to 40 – a 33-percent increase. Single-vehicle motorcycle accidents led this upswing, going from four last year to 14 this year – a 250-percent increase.

Most single-vehicle accidents occurred on Saturdays and Sundays and involved Soldiers traveling at excessive speeds and running off the road and striking objects such as guardrails or trees. The reasons why drivers ran off the road are often unknown or not reported.

OFF-DUTY CLASS A POV ACCIDENTS

	Fiscal 2007	Fiscal 2008	Increase/Decrease
Weekends	28	36	+8
Weekdays	26	26	0
Total	54	62	+8

as of April 30, 2008

Speeding and Alcohol

Speed-related crashes are those where drivers were racing, driving too fast for conditions or exceeding the posted speed limit. Speeding is one of the most prevalent factors contributing to traffic crashes. Speeding reduces a driver's ability to respond to changing conditions or steer safely through curves or around objects on the roadway. Speeding also increases stopping distances and reduces driver reaction time. While, overall, there was one less speed-related Class A accident compared to last year, there were five more speed-related motorcycle accidents and four more speed-related sedan accidents. These increases nearly offset the decreases in other vehicles.

SPEED-RELATED OFF-DUTY CLASS A POV ACCIDENTS

	Fiscal 2007	Fiscal 2008	Increase/Decrease
Motorcycle	8	13	+5
Sedan	8	12	+4
Truck	3	1	-2
Jeep/SUV	10	2	-8
Total	29	28	-1

as of April 30, 2008

Alcohol-related crashes are those where drivers or riders consumed alcohol within a few hours before the crash or when blood alcohol levels were above the legal limit. Alcohol reduces a driver's ability to recognize and react to dangerous situations. The number of alcohol-related Class A accidents decreased by three, compared to 11 at last year's midpoint. However, alcohol-related motorcycle accidents increased by three, partially offsetting the decreases with other vehicles.

ALCOHOL-RELATED OFF-DUTY CLASS A POV ACCIDENTS

	Fiscal 2007	Fiscal 2008	Increase/Decrease
Motorcycle	1	4	+3
Truck	0	1	+1
Van	1	0	-1
Jeep/SUV	3	0	-3
Sedan	6	3	-3
Total	11	8	-3

as of April 30, 2008

Motorcycles

Only once during the last 33 years have there been as many Class A motorcycle accidents at midyear as there are this fiscal year. So far this fiscal year, 21 motorcycle accidents have claimed the lives of 20 Soldiers and left one Soldier permanently totally disabled.

When it comes to Class A motorcycle accidents, sportbikes lead all other types of motorcycles by a substantial margin. In addition, compared to last year, sportbike accidents have increased at a faster rate than other motorcycle types. So far this year, sportbikes have been involved in 13 Class A accidents, an increase of five – or 63 percent – compared to the same period last year.

MOTORCYCLE TYPE OFF-DUTY CLASS A POV ACCIDENTS

	Fiscal 2007	Fiscal 2008	Increase/Decrease
Sport	8	13	+5
Cruiser	1	4	+3
Not Reported	3	4	+1
Total	29	28	-1

as of April 30, 2008

Helmets and Seat Belts

According to a December 2007 report[1] from the National Highway Traffic Safety Administration (NHTSA), motorcycle helmets saved 1,658 lives in 2006. Despite their proven life-saving ability, some Soldiers still choose not to wear their helmets. Of the 21 Soldiers killed or permanently totally disabled in motorcycle accidents, four (19 percent) were not wearing Department of Transportation (DOT)-approved helmets and three of these were riding sportbikes.

This NHTSA report also states that seat belts saved an estimated 15,383 lives in 2006 and saved more than 75,000 lives during the five-year period from 2002 through 2006. Despite the proven benefits of seat belts, some Soldiers continue to drive without them. Of the 42 Soldiers killed or permanently totally disabled in passenger vehicle accidents, 14 were not wearing seat belts, with 12 of these being either partially or completely ejected from their vehicle.

Conclusion

The increase in Class A off-duty POV accidents – particularly motorcycle accidents – represents an alarming and unacceptable trend. The causes of these accidents are not new or different and the use of seat belts or DOT-approved helmets could have saved the lives of some of these accident victims.

In order to reduce these accidents, Soldiers need to slow down and adhere to known policies, procedures, rules, regulations and laws. Soldiers must have the self-discipline to do the right thing – both on and off duty. Engaged Leaders emphasizing safety and carefully reviewing Soldiers' travel plans can go a long way toward turning these accident trends around.

References:

[1]National Highway Traffic Safety Administration, National Center for Statistics and Analysis, Traffic Safety Facts, December 2007.

Editor's note: These statistics are current from the Army Safety Management Information System as of April 30, 2008 and describe the first and second-quarter accidents for this fiscal year. The fiscal 2007 statistics cover exactly the same period from the previous year. Delayed reports and follow-up details on preliminary reports could change the statistics, figures and findings.

INDISCIPLINE BY RANK AND AGE, FISCAL 2008

Sum of Fatal Army Personnel Count

AGE	E4	E6	E7	O3	*Total*
22	1				1
23	1				1
22	2				2
25	1				1
26		1			1
27	1	2		1	4
33		1			1
34			1		1
35	1				1
Total	7	4	1	1	13

as of April 30, 2008

Note: The shaded areas represent the "center of mass." The rank observations cluster strongly in the E-4 to E-6 range. There is more observed dispersion among the ages. This suggests focusing on the rank more than the age, which also means that ages and ranks are not as correlated with each other as originally thought.

LESSONS FOR LEADERS

GLEN DAVIS
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

Based upon principles put forward by organizational theorists Karl Weick and Kathleen Sutcliffe[1], the following are some actions engaged Leaders can take to make their units safer, more reliable and resilient:

▪**Make your intentions clear.** Restate your goals in the form of mistakes that must not occur. Non-negotiable actions – such as never allowing vehicles to move until all personnel are wearing seat belts or riders are wearing DOT-approved motorcycle helmets and personal protective equipment – must be stated clearly.

▪**Create awareness of vulnerability.** Young Soldiers often overestimate their personal ability and underestimate their personal risk. Ask them, "What are the greatest hazards you encounter and what are you doing about them?" and expect thoughtful answers.

▪**Create an error-friendly learning culture.** Cultivate a climate where people share their experiences and learn from each other's mistakes. Ensure that this learning travels up, down and throughout the chain of command.

▪**Avoid complacency, especially when things are going well.** Be suspicious of good news. Success tends to build self-satisfaction and acceptance of the status quo, all the while slowly reducing the margins of safety.

▪**Reassess, reassess, reassess.** Stay ahead of changing conditions. Revise assessments as situations develop.

▪**Spend time on the front end of operations.** Face-to-face contact helps ensure clarity and impact.

▪**Set the example.** Nothing will undermine your credibility faster than violating your own commands, directions or principles.

▪**Seek out those who really know what is going on.** Somebody always knows, so be a good listener.

▪**Speak up – just because you see something doesn't mean that everyone does.** Never assume everyone else sees what is obvious to you. It only takes one Soldier failing to get something right to put everyone around him in danger.

▪**Be wary of inflating your own expertise.** Self-important people know less than they think, are less curious than they need to be and are more vulnerable to surprises because they aren't prepared.

Accident prevention is a tireless, serious undertaking and every Army Leader must be determined to end these tragic and needless off-duty accidents. Practicing engaged hands-on leadership will make a difference.

References: [1]Karl E. Weick and Kathleen M. Sutcliffe, *Managing the Unexpected: Resilient Performance in an Age of Uncertainty*, 2nd ed., John Wiley and Sons, Inc., Hoboken, N.J., 2007.

LET'S CHECK OUR PROGRESS

FISCAL 2008 AVIATION MIDYEAR ACCIDENT REVIEW

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We're halfway through fiscal 2008, and it's time to assess how the Army is doing in regard to aviation accidents. Although we're engaged in the Global War on Terrorism, it's vitally important that we continue to monitor our progress and ensure we are all using composite risk management (CRM) to prevent accidental losses. Let's take a quick look at Army aviation's accident trends for the first half of fiscal 2008.

The U.S. Army Combat Readiness/Safety Center database shows manned aircraft accidents mirror last year's numbers with 13 Class A and B accidents. Accidents include three Army Soldiers and four U.S. Air Force (USAF) Airmen. Of these accidents, 85 percent occurred during the day and nearly half occurred in Iraq. The chart on page 35 compares the number of accidents and fatalities for each aircraft type involved. Brief summaries of these accidents follow.

UH/MH-60 Black Hawk

The Black Hawk community accounted for five accidents during the first half of fiscal 2008: four Class A and one Class B. All seven fatalities occurred in this type aircraft. Three of the five accidents occurred in Iraq.

- An accident in Italy resulted in the deaths of two U.S. Army pilots and four USAF Airmen.
- A Soldier was killed during a night troop insertion mission in brownout conditions when he exited the aircraft before touchdown and fell roughly 30 feet.
- During final approach in instrument meteorological conditions, a UH-60L incurred a lightning strike, which then triggered a stabilator malfunction. The aircraft landed safely, but received Class B damage.
- The aircraft main rotor blade made contact with a persistent threat detection system aerostat cable during departure from a forward operating base at night. This resulted in tip cap damage to one UH-60L main rotor blade and Class A damage to the aerostat.
- The aircraft main landing gear sank into soft ground during touchdown to an unimproved surface and the nose section subsequently contacted a rocky area, causing airframe damage.

AH-64A/D Apache

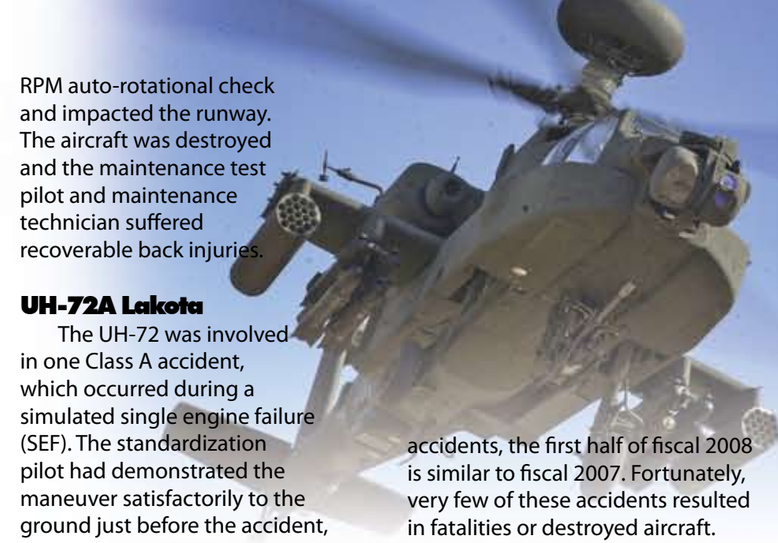
The Apache community had no reported Class A accidents; however, there were four Class B accidents during this time frame. Half of these accidents occurred in Iraq.

- A bird strike occurred during cruise flight at 1,000 feet above ground level, causing Class B aircraft damage.
- A rotor overspeed occurred while at a 5-foot hover. Rotor RPM (NR) went to 120 percent for five seconds, requiring replacement of the main and tail rotors.
- A crew experienced a generator failure in flight, which introduced smoke into the cockpit. During shutdown, the main rotor blade made contact with the pilot night vision system (PNVS), causing Class B damage.
- A maintenance crew was performing an aircraft run-up when smoke was observed coming from the target acquisition and designation system (TADS)/PNVS area. Inspection revealed burn damage to the TADS, turret sensor sight, electronic control unit and power supply.

OH-58D Kiowa Warrior

The Kiowa Warrior community was involved in two Class A accidents with no fatalities: one tree strike and one during a maintenance test flight.

- An OH-58D contacted trees during a day, low-level flight, went into a spin and descended to ground impact. The aircraft was destroyed, but no major injuries were incurred.
- A Kiowa Warrior incurred a low rotor condition during a main rotor RPM auto-rotational check and impacted the runway. The aircraft was destroyed and the maintenance test pilot and maintenance technician suffered recoverable back injuries.



UH-72A Lakota

The UH-72 was involved in one Class A accident, which occurred during a simulated single engine failure (SEF). The standardization pilot had demonstrated the maneuver satisfactorily to the ground just before the accident, but crashed during the second SEF demonstration due to an excessive vertical descent caused by rapid reduction of the collective. One pilot suffered minor injuries and the other was not injured.

Fixed-Wing

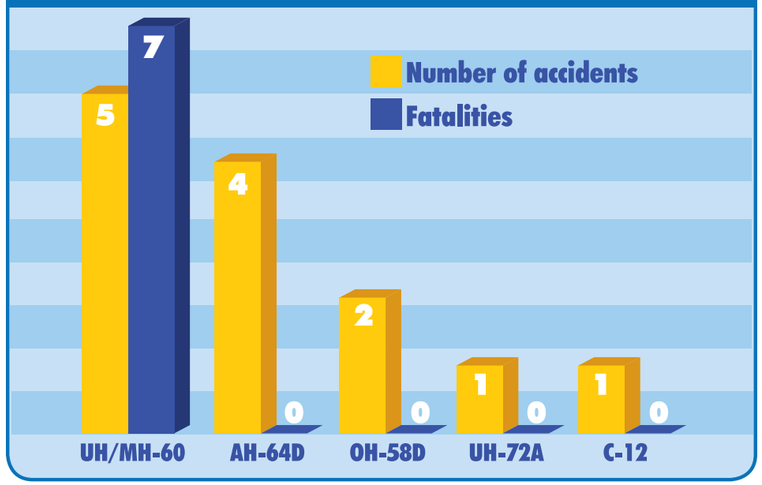
The C-12 was involved in one Class B accident in which the propeller contacted the runway when landing. There were no reported injuries.

Conclusion

When comparing Class A and B accidents, the first half of fiscal 2008 is similar to fiscal 2007. Fortunately, very few of these accidents resulted in fatalities or destroyed aircraft. The second half of the year is historically when we have the majority of our accidents. We must all work diligently to prevent the surge of accidents from occurring. Engaged leadership and consistent CRM will help make this a reality.

Editor's note: These statistics are current from the USACRC database as of April 23, 2008. The fiscal 2007 statistics cover exactly the same period from the previous year. Delayed reports and follow-up details on preliminary reports could change the statistics, figures and findings.

CLASS A-B AVIATION ACCIDENTS DURING FIRST HALF OF FISCAL 2008



as of April 23, 2008

LOST

AVIATION

AH-64

CLASS B D MODEL

During post-phase test flight, the crew experienced loss of power and a suspected compressor stall. The crew was able to put the aircraft down on the runway without further damage, but post-flight inspection revealed over-temp of the No. 1 engine (985 C for one second), as well as No. 2 engine over-torque (160 percent for four seconds). Both engines were replaced, as well as the transmission, nose-gear boxes and driveshafts.

CLASS C

Departing the runway, a bird struck the aircraft. No vibration or abnormalities were felt by the crew after the strike. The crew continued the mission. Once the crew shut down for refuel, they noticed the tip cap was damaged on the No. 3 main rotor blade. The crew then called for a one-time flight back to the airport. No further complications were noticed during the flight back. Maintenance replaced the main rotor blade.

CLASS E

Upon landing at the stopover destination, the through-flight check revealed the No. 2 engine nacelle was unsecured. The engine nacelle sustained damage to the extent that numerous structural ribs had to be replaced.

CH-47

CLASS C D Model

The aircraft touched down short of the landing pad with forward speed, and the aft landing gear contacted the ground and separated.

WHAT HAPPENED TO AIRCREW COORDINATION?

CLASS E

The aircraft was conducting sling-load operations to move an M198 Howitzer from one forward operating base (FOB) to another. While placing the load on the ground at the objective, the aircraft encountered extensive brownout conditions and the pilots lost visual reference with the ground and surrounding horizon. The crew chief and flight engineer confirmed the aircraft was drifting with the load in contact with the ground. The pilot in command elected to release the load and execute a go-around.

OH-58

CLASS B A Model

The crew experienced loss of torque, followed by a LOW-ROTOR audio indication. The aircraft touched down hard, striking some trees during its descent. Damage occurred to the rotor system, tail boom, stabilizer, tail rotor, vertical fin and landing gear. The crew and passenger were able to exit without assistance and suffered only minor injuries.

CLASS A D(R) Model

While conducting terrain flight, the trail aircraft of a flight of two struck the ground with its tail rotor, causing the aircraft to crash.

CLASS D

During flight, the left armor side panel unlatched and opened. The bolts retaining the armor panel tore from their mounts and the panel fell off the aircraft. The crew returned the aircraft to the nearest FOB and continued the mission in another aircraft. Maintenance repaired the bolt mounts area and installed another armor side panel.

CLASS E

The aircraft was conducting forward arming and refueling point (FARP) operations. Armament personnel had loaded the .50-caliber machine gun and attempted to throw the empty ammunition can clear of the aircraft when it contacted the main rotor blade. The ammunition can came to rest 25 feet from the aircraft. The crew shut down the aircraft and notified maintenance.

UH-60

CLASS A A Model

The crew experienced a fuel leak and subsequent fire while conducting a crashworthy external fuel system fuel-transfer check during run-up for flight. The crew conducted a normal shutdown before egress. The aircraft was consumed by fire.

WHY WEREN'T EMERGENCY SHUTDOWN PROCEDURES CONDUCTED?

CLASS C L Model

Upon post-flight inspection, the crew found a 4-inch by 1-inch hole in the tail rotor gear box cover, and a bird was found in the No. 2 engine inlet. A part of the bird or possibly a second bird may have struck the tail rotor gear box cover, causing the dzus fasteners to fail and the tail rotor cover to make contact with the driveshaft. There were no noticeable changes in aircraft performance or indications of a bird strike. During the engine teardown, there was damage found to the compressor section on the first stage blades. Damage was also found on the section IV driveshaft.

CLASS D

Chalk 3 of a multi-ship formation attempted to land into the wind to a large, open, sandy area with slightly sloping terrain. Upon touchdown, Chalk 3 landed with a high rate of descent, resulting in the forward third of the aircraft's belly striking the ground, stroking off both upper and lower right wheel strut cylinders and

ARMY AIRCRAFT LOSSES

Fiscal 2002 to Present
through June 30, 2008

Hostile/ Non-hostile	
AH-64A/D	11/51
U/MH-60A/L	9/29
C/MH-47	8/18
OH-58D	11/28
TOTAL	39/126

ARMY GROUND LOSSES

Fiscal 2008
through June 30, 2008

Class A Fatalities	
AMV	15/12
ACV	6/6
PERSONNEL INJURY includes weapons handling accidents	33/28
FIRE/ EXPLOSION	3/3
PROPERTY DAMAGE	2/0
TOTAL	59/49

damaging the right wheel strut faring. Subsequent inspection also found damage to the main rotor droop stops and tail wheel strut.

WAS A PROPER CROSSCHECK USED AND THE APPROACH MADE AT THE RATE OF A BRISK WALK?

CLASS D

While in a formation flight of two at 120 knots and 300 feet above ground level on a combat passenger shuttle mission, the passenger jettisoned the left-hand side cabin windows. The passenger was reaching for his bag, which was caught on the emergency release handle. When he pulled the bag, it released the windows. The crew did not recover the windows due to the threat in the area, but made a safe landing at the nearest FOB. The crew completed the mission and returned to home station, where the windows were replaced.

CLASS E

While performing air assault operations to an approved nonstandard landing zone, the aircraft's rotor wash lifted debris off the ground and made contact with the tip cap of the main rotor blade. No other damage was found.

UAS

CLASS B

The UAS experienced an engine failure shortly after launch. The vehicle was recovered following impact and deemed destroyed.

CLASS B

The UAS entered into uncontrolled flight following an uncommanded roll. The air vehicle operator lost video link and the aerial vehicle crashed, resulting in total destruction.

CLASS C

The UAS was returning from a routine mission after five hours of flight when the ground control station data indicated an erratic voltage reading. The tactical automated landing system (TALS) acquired the vehicle and the approach and landing were normal until it touched down. When the vehicle touched down, the TALS issued the cut engine command. The vehicle turned left about 45 degrees, ran off the runway and came to rest in a ditch.

CLASS C

The UAS veered off course about 10 minutes into flight. Unable to reestablish course, the vehicle crashed and could not be recovered.

GROUND

CLASS A

Two Soldiers were killed when their Mine Resistant Ambush Protected (MRAP) vehicle rolled over into a canal as it crossed a culvert. Seat belt use was not reported.

CLASS B

An M1117 Armored Security Vehicle was damaged when it caught fire during a scheduled road test. Attempts to extinguish the fire were unsuccessful.

CLASS A

A Soldier was killed when the M984/A1 HEMTT wrecker he was driving overturned on a highway access ramp. The driver and a passenger were both ejected. Seat belt use was not reported.

A Soldier was killed when an M923A2 carrying two 600-gallon fuel pods overturned when the driver attempted to negotiate a curve on a gravel road. The driver was injured and taken to a local medical center. Seat belt use was not reported.

A Soldier was killed when he was pinned between two vehicles. The Soldier had exited his M1070-series Palletized Loading System (PLS) at a range parking area to retrieve an item when he was pinned between his vehicle and another PLS being maneuvered into parking. A ground guide was not used.

ARE YOUR DRIVERS AND OTHER UNIT PERSONNEL TRAINED TO STANDARD IN THE CORRECT USE OF GROUND GUIDES AND GROUND-GUIDING OPERATIONS?

CLASS B

A Soldier suffered a permanent partial disability injury when he was ejected from an M1151 that overturned as the driver was attempting to avoid potholes. The Soldier, who was serving as the gunner, was wearing his gunner restraint.

Other

CLASS A

A Soldier suffered a permanent total disability when his privately owned vehicle, which he was driving on an official run, was T-boned by a pickup. The Soldier was medically evacuated to a local trauma center.

Personnel Injury

CLASS C

A Soldier suffered fractures to her leg while executing the single-rope bridge. The Soldier did not perform the proper fall technique by tucking her knees to her chest and locking her arms around her legs. Instead, she fell with her legs apart, which caused her injury.

DRIVING

CLASS A

A Soldier was driving at a high rate of speed when he lost control, left the road and overturned. The Soldier was not wearing his seat belt and was ejected during the crash and died at the scene.

A Soldier was driving up a highway onramp when he lost control of his sport utility vehicle (SUV). The SUV crossed four traffic lanes, went up an embankment, rolled over and landed on its wheels. The Soldier was not wearing his seat belt and was pronounced dead at the scene.

A Soldier was riding as a passenger in her vehicle when it was involved in a head-on collision with a vehicle going the wrong way on a divided highway. The Soldier and her unborn child were killed upon impact, and the driver of her vehicle was critically injured.

A Soldier was driving his vehicle when he was involved in a head-on collision with a vehicle that crossed the center line. The Soldier was fatally injured.

A Soldier was driving in heavy fog conditions when her vehicle crossed the median and collided head-on with an SUV. The Soldier suffered fatal injuries.

HAVE YOU WARNED YOUR SOLDIERS TO REDUCE SPEED IN FOG? LIMITED VISIBILITY CAN CAUSE DRIVERS TO LOSE SITUATIONAL AWARENESS ON THE ROAD.

A Soldier was entering a wet roadway when he lost control of his vehicle, went off the road and overturned. The Soldier was not wearing a seat belt and was thrown from the vehicle and killed.

Soldier was driving his vehicle in heavy rain when he lost control, crossed the median and collided with a tractor-trailer. The Soldier was fatally injured on impact.

A Soldier was driving his pickup in the left lane of a four-lane highway when a pickup in the right lane blew a tire, went out of control, crossed the lanes and forced the Soldier's vehicle across the median and into oncoming traffic. The Soldier then collided head-on with another vehicle and was pronounced dead at the scene.

POM

CLASS A

A Soldier was operating his motorcycle when he lost control on a curve, crashed and suffered fatal injuries. Ten minutes before the accident, the Soldier had been given a warning for traveling almost 30 mph above the posted speed limit. Although the Soldier was wearing a helmet, he had not attended the Army-approved Motorcycle Safety Foundation training and did not have a current motorcycle license.

A Soldier was operating his motorcycle when he struck an SUV that turned in front of him. During the impact, the Soldier's helmet came off and he was thrown from his bike, suffering fatal injuries.

A Soldier was operating his motorcycle when he collided with a vehicle that had turned into his path. The Soldier, who had been issued his motorcycle permit two days before the crash, was not wearing a helmet, even though one was required by state law and Army regulation. The Soldier was transported to a trauma center, where he died.

Editor's note: Information published in the accident briefs section is based on preliminary loss reports submitted by units and is subject to change. For more information on selected accident briefs, e-mail knowledge@crc.army.mil.

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GROUND RISK ASSESSMENT TOOL

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The Ground Risk Assessment Tool is designed to aid in mitigating risk by reinforcing the five-step composite risk management process and providing users with potential accident hazards and controls. Using this tool in concert with the military decision-making process will help Army leaders achieve success in their missions and make safety an integral part of their planning. Visit the USACRC Web site today and try it out for yourself.

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Making good safety practices into habits can save your life.

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Pay 100 percent attention to your driving, drive at a reasonable speed, never drive impaired and always use safety equipment properly.

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ARMY SAFE IS ARMY STRONG

101 CRITICAL DAYS OF SUMMER
26 May – 1 Sept 2008

safety always in season

Thunderstorms, tornados and hurricanes can damage or destroy entire neighborhoods within minutes. Take steps now to prepare your Family to ride out a storm safely.

- **Plan your severe weather strategy.**
Build a disaster supply kit, select a "safe room" and designate Family members responsible for specific tasks such as securing valuables and documents, shutting off power or retrieving pets.

- **Prepare your home, inside and out.**
The Federal Emergency Management Agency and American Red Cross Web sites contain comprehensive checklists to assist in preparing your home and property for severe weather.

- **Practice your evacuation and recovery plan.**
Map out home escape routes and make a plan for Family members to reunite. Designate an out-of-state relative or Family friend as a contact person and make sure all Family members know how to reach the person.

www.Fema.gov
www.Redcross.org

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ARMY SAFE IS ARMY STRONG

101 CRITICAL DAYS OF SUMMER
26 May - 1 Sept 2008